PREFERENCES FOR TRANSIT TRAVELER INFORMATION: OVERVIEW OF RESEARCH OBJECTIVES AND FINDINGS

RESEARCH PURPOSE AND GOALS

The Federal Transit Administration (FTA), in support of the U.S. Department of Transportation (DOT) mission to create "a safer, simpler and smarter national transportation system," is focusing research on the needs of its primary customers – transit riders. In addition, FTA has established a goal to increase overall transit ridership by 2% in FY 2004.

The FTA believes that more effectively targeting and presenting transit information, both static and real-time, can significantly help meet these goals. A recent Transit Cooperative Research Program report on new paradigms for local public transportation organizations asserts "information technology . . . provides the single greatest opportunity to enhance the quality of the travel experience" (TCRP, 2000). The FTA recognizes that transit customers today expect more and better information from their local transit agencies to assist them in their transit and multi-modal trip making. In addition to making the transit experience of current users more comfortable and convenient, FTA hopes that better information will contribute to the kind of satisfaction that will lead customers to choose transit more often and remain committed to transit for longer periods of time. FTA also hopes that better information will attract new riders who, otherwise, are reluctant to venture onto public transit. The FTA is looking to the findings from this research study to offer transit agencies practical ideas for making effective, and desired, improvements in their provision of information to their customers.

Research Objectives. The FTA initiated this research effort by starting with the transit customers themselves to seek answers to the following questions:

- What kinds of transit information do customers want and expect the agencies to provide?
- Where should the information be made available to transit travelers?
- Which delivery system do the users prefer?
- When should the information be made available to be most useful to transit travelers?
- What are the relevant human factors issues in providing transit information?

These questions have been addressed through a series of 12 workshop sessions, covering 284 participants, both through surveys of customer opinions and preferences, and through qualitative discussions with customers, conducted at four locations across the country. This web site presents the findings from this research, including the full research report, and a database of the workshop survey data.

The FTA is particularly interested in understanding the extent to which transit agencies currently are trying innovative, advanced ways of offering information to their ridership, especially real-

time information. FTA also is interested in how current transit riders are using high technology tools to access this transit information. These tools might include the Internet; handheld devices, such as cellular telephones, pagers, and personal digital assistants (PDAs) or other wireless communication devices; and advanced real-time signs and announcements. Through this research, the FTA is seeking insight into and more detailed guidance regarding what information public transportation customers say they want.

CUSTOMERS' PREFERENCES FOR TRANSIT INFORMATION

The participants in the 12 workshops were asked about their information preferences at three points in their trip: (1) at or during pre-trip planning, (2) at stops and stations (the *wayside*), and (3) on board the transit vehicle. Transit riders indicated different information preferences for each of these trip segments, in terms of the type of information desired and the preferred delivery method. This section summarizes the information preferences expressed by the workshop participants through surveys and follow-up group discussions. These preferences were examined to ensure that they represent the consensus of workshop participants, considering both the responses to the survey questions and the opinions represented in the more open-ended breakout discussion groups. The summary indicates where opinions varied by demographic or socioeconomic factors.

Overall Information Preferences

- **Essential information** – includes timetables, route maps, location of the nearest stop, transfer details, trip planning assistance, fares, and alternative routes.

- **Desired information, but not essential** – includes real-time vehicle location, parking availability, and weather updates.

- **Information preferences change over the course of a trip** – static information preferred for pre-trip planning but real-time information desired at the wayside and in-vehicle.

- **Information needs are greatest for pre-trip planning** – and diminish over the course of the trip, with progressively less information required at the wayside and in-vehicle.

- **Information preferences vary by age** – with older passengers (65+) preferring printed media, younger passengers (18-24) preferring the telephone for pre-trip and en-route information, and others (25-64) preferring the Internet for pre-trip information and preferring dynamic message signs and video monitors for real-time information at the wayside.
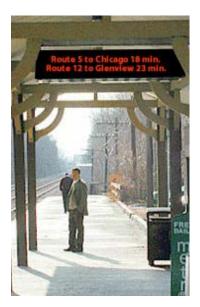
Pre-Trip Planning Information

- **Timetables, route maps and schedule information** – essential for most trips, especially for passengers who are unfamiliar with the specific trip or are new to the transit system.

- **Static information is preferred over real-time for pre-trip planning** – with customers seeking information printed on paper, available on a computer, or available by telephone.

- **Forecasts of trip time** – the most preferred type of real-time information, especially for unfamiliar trips.

Wayside or Bus Stop Information

- **Real-time arrival / departure information** – preferred while waiting for transit vehicle.

- **Static signage** – to identify the bus route, schedule information, and provide a phone number to call for more information. This was considered important.

- **Vehicle arrival time and wait time between buses on the same route** – preferred so customers know when to expect the next bus and decide whether they have enough time to conduct other business while they are waiting.

- **Real-time information** – presented through dynamic message signs (DMS) or on a video monitor. Countdown signage was preferred over signs providing estimated time of arrival.

- **Clear information on where the bus will stop** – desirable both at the transit center (i.e., which bay) and at the bus stop (i.e., which side of the street).

- **Visual information and auditory announcements** – both are preferred to ensure that information is accessible to all passengers.

In-Vehicle Information

- **Essential real-time information preferences** – detours and delays, trip time, and current vehicle location so that riders can plan transfers and determine where to exit the vehicle.

- **Essential static information preferences** – printed signs and paper media to display timetables, route maps, closest stop, and transfer locations en-route.

- **Dynamic message signs and announcements** – with automated announcements perceived as more clear and consistent than driver announcements, and message signs desired at the front and back of the bus to increase visibility.

- **Simple graphical displays** – or route strip maps showing the vehicle's current location along its route.

PREFERENCES FOR HOW TRANSIT INFORMATION IS PRESENTED

Participants in the workshops discussed in some detail how they preferred to access and use information that could be helpful to them in their transit trip-making. Their suggestions are summarized here.

- **Self-contained information** – so that customers don't have to either memorize schedules or routes, or carry additional information materials with them. For example, a few workshop participants indicated that they did not always have a wristwatch available and therefore preferred countdown information or a display showing the time of day.

- **Multiple redundant sources of information** – so that riders may choose their preferred information delivery method, from paper schedules to electronic data. In addition, providing information in a variety of ways and forms accommodates the information needs of customers with sensory or physical disabilities and those who do not speak or understand English.

- **Changing information preferences for each segment of the trip** – so once a trip plan is made, fewer, more focused information resources are required at the wayside or on the vehicle. In addition, the preferred information delivery systems tend to shift from static scheduling information to real-time vehicle arrival/departure time and location updates.

- **Automated telephone systems** – have proved useful for providing customers with certain types of information, such as agency hours of operation, fares, major service changes or disruptions, and for information that can be obtained easily and quickly through a simple interactive voice response structure. However, most customers like having the option of talking to a customer service agent.

- **Automated on-board stop information** – both audio (using automated enunciators) and visual (using dynamic message signs or a route strip map). The availability of automated information about upcoming stops is perceived as providing consistency and clarity for passengers, as well as reducing the workload on the drivers.

- **Real-time arrival/departure displays** – showing countdown of minutes until the next transit vehicle arrives, are preferred over predicted arrival time. Arrival time displays require passengers to have access to a clock and to calculate the time until arrival while countdown information is seen as more intuitive and consistent for all passengers.

- **Abbreviated real-time message sign text displays** – were acceptable to most passengers, rather than full text displays, if the smaller displays reduce costs and allow support for displays at a larger number of locations.

- **Real-time arrival/departure information for the next two transit vehicles** – rather than simply the next one, provides transit riders with two pieces of information. First, for high volume routes, such as commuter or special event services, it allows the rider to decide whether to wait for the second bus that may be less crowded and more comfortable. Second, the spacing between vehicles conveys useful information about the frequency of service at a particular stop or station.

SUMMARY OBSERVATIONS

Based on the workshop participants' responses to the surveys and their comments in the discussion groups, some summary observations can be offered.

- The underlying quality of transit information, including accuracy and reliability, is more important than the sophistication or high-tech aspects of the technologies used to convey the information.

- High-technology systems are very desirable for a variety of transit applications and locations, but this research suggests that agencies concentrate first on providing quality, basic information, such as traditional paper schedules.

- Transit riders recognize that transit agencies are faced with limited resources. Given the inevitable tradeoffs, these workshop participants believe that agencies should provide widespread, low-cost systems that benefit the largest number of customers before focusing on the costly needs of smaller segments of customers. However, when introducing advanced information systems, participants felt that agencies should first focus on fewer key locations with high quality applications, rather than trying to cover an entire system, likely with lower quality systems, given the financial constraints.

- Some transit riders are reluctant to pay for the costs of high-technology information systems. Low-income riders, in particular, do not want to purchase personal information devices, such as PDAs, just so they can access transit information. They believe that agencies should be responsible for providing basic information free of charge, either through wireless/Internet services, telephone access, or at bus stops or train stations. Furthermore, they do not want their fares to reflect the costs of introducing high-technology strategies that they are unlikely to use.

- Transit customers who routinely used wireless devices were generally enthusiastic about the potential for accessing transit information, particularly real-time information about service changes or delays. These customers saw the greatest value in using wireless devices for deciding when to leave to catch their transit ride, or while walking to the transit stop. Accurate real-time information about arrival times would let them know how much time they had to catch the bus or train, allowing them to make better use of their time.

- Finally, the research suggests that transit operators focus on building awareness for existing high-tech services before adding new services. Many workshop participants were not aware of existing advanced transit information services available in their own travel areas, such as automated route planning or other web-based services. Expanded advertising and promotion of both existing and planned information services should help get increased use and benefit.